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Summary Review / Child Oral Health-Related Quality of Life following treatment under dental general anaesthetic (DGA)

Title: Oral health-related quality of life changes in children following dental treatment under general anaesthesia: a meta-analysis

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A Commentary on: Park JS, Anthonappa RP, Yawary R, King NM, Martens LC. Oral health-related quality of life changes in children following dental treatment under general anaesthesia: a meta-analysis. Clin Oral Investig. 2018 Nov;22(8):2809-2818. doi: 10.1007/s00784-018-2367-4. Epub 2018 Feb 9. PubMed PMID: 29427008.

Data sources: PubMed, EMBASE, Web of Science, CINAHL and the Cochrane Library.

Study selection: Two independent reviewers selected studies which employed validated QoL instruments, Early Childhood Oral
Health Impact Scale (ECOHIS) and the Child Oral Health-Related Quality of Life (COHRQoL) questionnaire to evaluate the change in child oral health-related quality of life (OHRQoL) following dental treatment under general anaesthesia (DGA) for caries.

Data extraction and synthesis: Risk of bias was assessed using the Cochrane Collaboration tool. A metanalysis was conducted, dividing studies based on the OHRQoL measure used.

Results: 22 research articles were included in the review, which included twelve studies employing each of the two OHRQoL measures. Risk of bias in the included studies varied considerably. An overall improvement in OHRQoL was identified in all studies following DGA. The mean difference in scores post-treatment for ECOHIS and COHRQoL were 1.62 [95% CI 1.52–1.71; $P < 0.00001$; $I2 = 0\%$] and 0.86 [95% CI 0.74–0.99; $P < 0.00001$; $I2 = 0\%$], respectively, with medium to large effect sizes. There was no evidence of heterogeneity.

Conclusions: Treatment under DGA significantly improved the OHRQoL of children, as reported by their parents. The authors suggest that studies of longer than three months are required to assess whether these changes are sustained in the long-term.

GRADE Rating: High / Moderate / Low / Very Low

Commentary

Mrs Rebecca Knapp (research assistant) and Professor Zoe Marshman (Professor of dental public health), School of Clinical Dentistry, University of Sheffield.

Dental caries is a significant global health concern, affecting certain high-risk groups disproportionately within populations[1]. Sometimes it is necessary for children with dental caries to receive dental treatment under general anaesthesia (GA). Oral health-related quality of life (OHRQoL) measures are increasingly being used to assess the impact of oral diseases from the patient's perspective. A number of such measures have been developed for use in children, although the majority rely on proxy (parental) reported measures [2]. The aim of this review was to evaluate OHRQoL changes in children following treatment for dental caries under GA using two proxy-reported measures.

An extensive literature search was conducted, with no restriction on publication date or language which should have ensured all relevant publications were identified. However, in order for a meta-analysis to be performed this review only included studies using the two most commonly employed measures, namely the Early Childhood Oral Health Impact Scale (ECOHIS) and the Child Oral Health-Related Quality of Life (COHRQoL) questionnaires. The risk of bias was assessed using the Cochrane Collaborations Tool for Assessing Bias, which is usually applied to randomised controlled trials. Overall, 86% of studies were deemed high risk for selection bias and 41% of studies high risk of attrition bias due to high loss-to-follow-up. A meta-analysis was conducted, which revealed statistically significant improvements in OHRQoL following treatment with moderate to large effect sizes for both the ECOHIS and COHRQoL questionnaire groups. However, there were still significant clinical and methodological differences between the studies, so the conclusions that can be drawn from this are limited. For example, the time frame for follow-up in the different studies ranged from one to 48 weeks, albeit most studies had a follow-up period of less than 3 months. Another limitation of the findings is that all but one of the studies did not report on the type of treatment being carried out under GA, so it is difficult to assess if similar treatments are being compared. In order to build the evidence base, the authors recommended further studies looking at the long-term effects of treatment under GA on children, as well as the effects of different treatment types. In addition, the authors noted the need for studies to ensure age-appropriate measures of OHRQoL are employed.

This is a growing area of research, which would benefit from further studies looking into the longer-term effects, i.e. over 3 months and longer, of treatment under GA for dental caries in children. However, other studies have found only moderate agreement between child and proxy reports of OHRQoL, and therefore further research using child-reported measures is warranted [3,4]. To date there has been little research into the

effects of different treatment approaches under GA, and further research in this area is needed.

Practice Points: The results help to evaluate the patient outcomes following dental treatment under GA. Measuring child OHRQoL provides clinicians with a way of identifying needs, selecting the best therapies and monitoring patients' progress.

References:

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